AUTHOR INDEX

Numbers in parentheses are reference numbers and indicate that the author's work is referred to although his name is not mentioned in the text. Numbers in *italic* show the pages on which the complete references are listed.

Abgrall, H., 102(151), *113*
Adachi, H., 192(102), *220*
Adams, J. E., 118(40), 126(40), *165*
Adler, F. T., 121(41), *165*
Aizenbud, B. M., 55(128, 129), *112*
Akcasu, A. Z., 389(135), 399(139), 403(139, 142), 404(142), 405(135, 142), 406(135, 142), 407(142), *433, 434*
Albrecht, A. C., 399(140), *433*
Alkahafaji, S., 399(139), 403(139), *433*
Allard, N., 103(158), *113*
Almlof, J., 174(25), 181(25), *218*
Al-Noaimi, G. F., 374(125), *433*
Amit, D. J., 326(87), *432*
Andersen, E. L., 188(72), *219*
Anderson, E., 188(77), *219*
Armstrong, R. C., 371(117), *433*
Ashford, M. N. R., 9(14), *109*
Aspect, A., 36(105), *112*
Atabek, O., 56(136–139), *112*
Avdeev, V. I., 178(48), *218*
Averill, F. W., 192(102), *220*

Bacskay, G. B., 175(31), 176(31), 188(78), *218, 219*
Baer, M., 118(27, 28), 128(51), 151(90, 92), 163(90), *164–166*
Baerends, E. J., 187(89), 191(91, 98), *220*
Baerends, E. L., 191(95), *220*
Bagchi, B., 351(99), 414, *432*
Bagus, P. S., 98(141), 102(141), *112*, 181(62), *219*
Balalaev, V. E., 146(75), *166*
Baldwin, P., 333(92), 351(99), 389(136), 404(136), 406(136), 414, *432, 433*
Balint-Kurti, G. G., 56(133), *112*
Band, Y. B., 2(1, 2), 3(4), 4(1, 2, 8–11), 13(21), 22(8), 36(8, 108), 39(8), 40(8), 44(108), 48(108), 49(108), 55(113–115, 120, 125, 128, 129), 56(130), 84(8), 93–96(9, 10), 97(10), 99(11), 102(11), *109, 112*
Barker, A. D., 171(11), 193(11), *217*
Barker, C., 171(11), 193(11), *217*
Barker, J. A., 318(75), *431*
Barry, R. S., 170(2), 172(2), 193(2), *217*
Bartlett, N., 195(126, 128), *220, 221*
Bartlett, R. J., 173(19), 181(19), 182(19), 187(90), *217, 220*
Baughaum, S. L., 15(48), 16(48), *110*
Baumgärtner, A., 304(18), 413(157), *430, 434*
Bauschlicher, C. W., 189(84), *219*
Beanchamp, J. L., 195(129), *221*
Bell, J., 179(49), *218*
Benmouna, M., 389(135), 399(139), 403(139), 405(135), 406(135), *433*
Bennoit, H., 353(103), *432*
Bergmark, T., 171(9), 193(9), 205(9), 211(9), *217*
Berkowitz, J., 170(6, 7), 193(6, 7), *217*
Bernstein, E. R., 194(125), *220*
Bernstein, R. B., 16(36), *110*, 146(77), *166*
Berry, M., 129(52), 147(79), *165, 166*
Berry, R. S., 29(83), 35(92), 36(92, 107), *111, 112*
Bersohn, R., 3(7), 16(52), *109, 110*
Beswick, J. A., 36(106), *112*
Billingsley, F. P., 182(66), *219*
Binkley, J. S., 174(23), 184(23), *218*
Bird, R. B., 307(22), 371(117), *430, 433*
Bixon, M., 371(117), 372(123), *433*
Black, G., 14(26), *109*
Blais, N. C., 135(57), 136(57), 163(57), *165*
Bloor, J. E., 194(114), 195(114), *220*
Bobrowitz, F. W., 154(95), *166*

Bogoliubov, N., 229(17), *298*, 326(87), *432*
Boldyrev, A. I., 175(32-34), 178(48), 192(101), 193(34, 101, 131, 132), 194(101, 117, 121), 195(121, 122, 137, 138), 196(138), 198(101), 199(32, 34, 101, 122), 200(122), 201–204(121), 205(117), 206(121), 208(117), 210(138), 211(121, 137), 213-215(140), *218*, *220*, *221*
Boring, M., 194(113), *220*
Borod'ko, Ju. G., 192(103), *220*
Borrell, P., 13(22), *109*
Borshchevsky, A. V., 194(118), *220*
Bovier, A., 312(46), *430*
Bowman, J. M., 116(10), 117(17, 18), 118(17, 18, 29–31), 124(17, 18), 128(50), 130(17), 132(17), 135(29, 30, 55), 140(55), 143(17, 67), 144(31), 145(70), 147(29, 81), 153 (93, 94), 162(106, 110), *164–167*
Branscomb, L. M., 170(1), 172(1), 193(1), *217*
Bredford, E. J., 15(31, 32), *109*
Brezin, E., 330(90), *432*
Brink, D. M., 21(70), 25(70), 45(70), *111*
Brown, J. M., 154(97), *166*
Broyer, M., 36(106), *112*
Brundle, C. R., 171(11), 193(11), *217*
Brydges, D., 307(21), 322(21), *430*
Bueche, F., 310(32), *430*
Buenker, R. J., 13(25), *109*, 181(63), *219*
Bunge, A. V., 172(15), *217*
Bunge, C. F., 172(15), *217*
Bunker, P. R., 103(157), *113*
Burchard, W., 394(166, 169), 400(166), *434*
Burde, D. M., 16(39), *110*
Burgess, J., 194(120), 199(135), *220*, *221*
Burkhard, P., 18(59), *110*
Butsky, V. D., 194(118), *220*
Buttenshaw, J., 99(148), 100(148), 103(148), *113*

Cade, P. E., 175(27), 176(27), *218*
Cannell, D. S., 362(108), 407(108), 409(108), *432*
Cardy, H., 215(141), *221*
Carolin, D., 403(141), *434*
Carrington A., 20(65), 99(148), 100(148), 103(148), *111*, *113*
Carsky, P., 173(18, 20), 177(18), 181(18, 20), 182(18, 20), 184(18, 20), *217*
Castleman, A. W., Jr., 213(144), *221*
Cederbaum, L. S., 173(22), 177(22), 181(52, 55), 186(22, 52), 188(22, 75), 198(22), *217–219*
Cernusak, I., 184(68), *219*
Chamberlain, G.A., 36(101), *111*
Chandrasekhar, J., 216(147), *221*
Chandrasekhar S., 320(81), *432*
Chang, T. Y., 24(77), 30(77), *111*
Charkin, O. P., 175(32–34), 178(48), 193(34), 199(32, 34), 216(150), *221*
Chaturnedi, B. K., 146(73), *166*
Chavez, C. M., 304(16), *429*
Chen, K., 35(95), *111*
Chen, T., 188(76), 189(76), *219*
Chien, R.-L., 35(96), 36(96, 107), 47(96), *111*, *112*
Chikahisa, Y., 311(38), *430*
Child, M. S., 16(36), *110*, 118(33), 135(33), 141(65) 162 (107), *164*, *165*, *167*
Chinn, J. W., 216(147), *221*
Chiu, Y.-N., 22(72, 73), 23(72, 73), *111*
Chong, D. R., 181(56), *219*
Christoffel, K. M., 162(106), *167*
Chu, B., 400(161), *400*
Chupka, W. A., 170(6, 7), 193(6, 7), *217*
Clark, T., 216(149), *221*
Clear, R. D., 16(53), 17(53), *110*
Cleary, D. A., 216(143), *221*
Clementi, E., 175(35), 178(46,47), *218*
Clyne, M. A. A., 16(44, 45, 49, 50), *110*, 158–160(101), *166*
Cohen, N., 157(98), 158(98), *166*
Cohen-Tonoudji, C., 36(97), 47(97), *111*
Coltrin, M. E., 139(62), *165*
Compton, R. N., 177(119), 194(111, 119), 195(119), 199(111), *220*
Connor, J. N. L., 118(23, 33), 135(33), *164*
Conroy, H., 191(92), *220*
Cooper, C. D., 177(119), 194(111, 119), 195(111, 119), *220*
Cooper, D. L., 35(89), *111*
Cosby, P. C., 99(144, 145), 100(145), 102(145), *113*
Cotton, J. P., 353(103), *432*
Courbage, M., 226(4, 5), 235(25), *298*, *299*
Courtiss, C. F., 121(41), *165*, 307(22), 371(117), *430*, *433*

Dalgarno, A., 102(149), *113*
Dao, P. D_y, 213(144), *221*
Daoud, M., 353(103), 410(150), *432*, *434*
Dargelos, A., 215(141), *221*
Das, G., 182(65), *219*
Dashevskaya, E. I., 103(153), *113*
De Frees, D. J., 174(23), 184(23), *218*
de Gennes, P. G., 303(4, 5), 313(56), 317(70), 345(70), 352(4), 353(103), 407(149), 410(149), *429*, *431*, *432*, *434*
de Haan, M., 234(23), 239(23), 248(28), 258(27, 28), 266(23), 267, 293(27, 28), *299*
de Haas, N, 146(72), 158(102), *165*, *166*
Dekock, R. L., 171(10), 193(10), *217*
de la Torre, J. G., 394(168), *434*
Delly, B., 191(96), *220*
Demtröder, W., 15(34), *110*
de Queiroz, S. L. A., 304(16), *429*
Derrida, B., 304(17), *429*
Desbat, B., 195(128), *221*
des Cloizeaux, J., 303(6), 340(94), 354(105), 365(6), 393(138), 399(138), 403(138), 415(6), *429*, *432*, *433*
Dimock, J., 312(47), *430*
Dispert, H., 195(123), *220*
Ditchfield, R., 175(37), *218*
Dixon, D. A., 189(82, 94), *219*
Djordijevic, Z. V., 404(174), *434*
Domb, C., 311(37), 344(97), 351(100), *430*, *432*
Domcke, W., 173(22), 177(22), 181(52), 186(22, 52), 188(22), 189(22), *217*, *218*
Donster, M D., 365(109), *432*
Dowing, B. W., 212(139), *221*
Dunbar, R. C., 9(15), *109*
Dunning, T. H., 175(39, 40), 179(40), *218*
Dunning, T. H., Jr., 153(94, 95), *166*
Duplantier, B., 317(73), 345(73), *431*
Duplessix, R., 353(103), *432*
Dupuis, M., 174(24), 188(81), *218*, *219*
Düren, R., 14(28), *109*
Dvoretsky, A., 321(86a), 322(86b), *432*
Dwyer, J. P., 121(45), *165*

Ecker, F., 181(55), *219*
Edwards S. F., 309(23), 311(40), 313(23, 59), 315(59), 323(23), 353(59), 355(59), 359(59), 379(128), *431*, *433*
Einaga, Y., 394(162, 163, 165), 400(162, 163), *343*
Elderfield, D. J., 349(98), 351(98), 391(98), 392(98), *432*
Elkowitz, A. B., 117(19), 121(44), 129(19), 136(19), *164*, *165*
Ellis, D. E., 187(88, 90), 191(95, 96), 192(100, 102), *219*, *220*
Ellison, M. A., 116(4), *164*
Emmons, R. W., 151(91), 163(91), *166*
Engelke, F., 15(31, 32), *109*
Erdös, P., 321(86a), 322(86b), *432*
Eu, B. C., 116(7), *164*
Eyring, H., 116(2, 8), *164*
Ezra, G. S., 162(109), *167*

Fairchild, C. E., 13(24), *109*
Family, F., 304(13, 19a, 19b), 410(150), *429*, *430*, *434*
Fano, U., 5(12), 35(91), 85(12, 140), 86(12), 94(12), *109*, *111*, *112*
Farber, M., 176(42), *218*
Farnoux, B., 353(103), *432*
Felder, G., 312(46), *430*
Feldman, D. L., 15(30), *109*
Feller, W., 320(80), 321(83), *431*, *432*
Feymman, R. P., 309(24), 417(27), *430*
Filatov, V. V., 146(75), *166*
Finaga, Y., 394(160), 399(160), *434*
Fisher, M. E., 304(10), 328(88), 329(88), 333(88), 340(93), *429*, *432*
Fixman, M., 310(33), 313(52), 372(121, 122), 412(173), *430*, *431*, *433*, *434*
Flory, P. J., 304(20), 313(50, 51), 315(20), 317(50), 392(137), *430*, *431*, *433*
Flynn, C. P., 414
Fontana, P. K., 24(76), 30(76), *111*
Fontana, P. R., 24(75), 30(75), *111*
Forgensen, F., 154(97), *166*
Francois, J., 403(143), *434*
Freed, K. F., 2(1, 2), 3(4), 4(1, 2, 8–11), 20(62, 63), 21(63), 22(8), 34(62, 63), 36(8, 108), 39(8), 40(8), 44(108), 48(108), 49(108), 55(11, 113–115, 117–120, 123–125), 56(130), 84(8), 93(9, 10), 94(9, 10), 95(9, 10), 96(9, 10), 97(10), 99(11, 147), 102(11, 147), 103(123, 147), *109*, *110*, *112*, *113*, 172(14), 181(58), 187(14), *217*, *219*, 313(57), 317(74), 331(91a), 333(91a), 342(91b), 344(91a), 349(98), 351(98),

Freed (*Continued*)
372(119), 379(128), 384(130), 391(98), 392(98), 404(145), 405(145), 410(151, 153, 154), 414, *431–434*
Freire, J. J., 394(168), *434*
Frölich, J., 312(46), *430*
Fujimoto, T., 400(164), *434*
Fujita, H., 394(160, 162, 163), 396(158), 399(160), 400(158, 162, 163), 403(143), *434*
Fujita, M., 394(165), *434*
Fujita, S., 228(14), *298*

Gabrielse, G., 13(21), *109*
Gallagher, A., 103(160), *113*
Gardner, M. A., 188(71), 189(71), *219*
Garragher, A. L., 170(4), 193(4), *217*
Garrett, B. C., 116(15), 117(21), 127(15, 48), 139(21), 141(64), *164, 165*
Geil, P. H., 414
Gelbart, W. M., 3(3), *109*
Gel'fand, I. M., 309(25), *430*
Gellene, G. I., 216(143), *221*
George, C., 225(1), 226(3), 228(15), 233(21), 234(15), 235(1, 15), 236(15, 21), 240(26), 248(28), 258(28), 261(1), 262(1), 265(1), 267(1), 293(27, 28), *298, 299*
Gerber, T. E., 18(59), *110*
Geurts, P. J. M., 191(98), *220*
Gillis, J., 344(97), *432*
Giusti-Suzor, A., 102(150, 151), *113*
Glass, G. P., 146(73), *166*
Glass-Maujean, M., 13(22), *109*
Glimm, J., 417(29), *430*
Golberger, M. L., 227(11), 231(11), 269(11), *298*
Gole, J. L., 189(84), *219*
Gordon, E. B., 146(75), *166*
Gordon, M., 311(39), *430*
Gordon, R. J., 158(103), 159(103), *166*
Gorokhov, L. N., 195(130), *221*
Goscinski, O., 181(57), *219*
Gosselink, J. W., 191(98), *220*
Graff, M. M., 99(145, 146), 100(145), 102(145, 146, 152), *113*
Grangier, P., 36(105), *112*
Grecos, A., 227(10), 235(24), 264(29), *298, 299*
Green, S., 98(141, 142), 102(141, 142), *112*
Greene, C. M., 52(111), 94(111), *112*
Grein, F., 188(79), *219*
Griffing, K. M., 174(29), 176(29), 188(29, 72, 74), *218, 219*
Grimley, T. B., 310(34), *430*
Gubanov, V. A., 192(100), *220*
Gunton, J., 384(131), *433*
Guo, T., 235(24), *299*
Guo, W., 235(24), *299*
Gurol, M., 389(135), 405(135), 406(135), *433*
Gurvich, L. V., 176(41), 177(41), 180(41), 193–195(41), *218*
Gusarov, A. V., 195(130), *221*
Gutman, D., 170(6, 7), 193(6, 7), *217*
Guttman, C. M., 394(170), *434*
Gutsev, G. L., 191(94, 97, 99), 192(99, 101, 103), 193 (101, 131, 132), 194(101, 116, 117, 121), 195(116, 121, 122, 137, 138), 196(138), 198(101), 199(101, 116, 122), 200(122), 201–204(121), 205(117), 206(121), 208(117), 210(138), 211(137), 213–215(140), *220, 221*
Guyon, P. M., 12(19), 13(22), *109*

Hackmeyer, M., 182(67), *219*
Haigh, I. H., 194(120), *220*
Halavee, U., 129(53), *165*
Haller, H. R., 364(108), 407(108), 409(108), *432*
Hammond, E. C., 17(56), *110*
Han, C. C., 394(170), 403–407(142), *434*
Handy, N. C., 118(40), 126(40), *165*
Hansen, J. C., 35(93), 36(93), *111*
Happer, W., 36(98), 47(98), *111*
Harding, L. B., 135(55), 140(55), *165*
Harley, A. C., 175(31), 176(31), *218*
Harms, S. H., 123(46), 127(46), *165*
Hase, W. L., 116(16), *164*
Haselgrove, C. B., 191(93), *220*
Hassager, O., 371(117), *433*
Hauge, E. M., 304(12), *429*
Hay, P. J., 175(40), 179(40), *210*
Hayden, C. C., 147(80), *166*
Hayes, E. F., 118(34), 135(34), 136(56), 147(86), 151(56), 163(56, 115), *164–167*
Heaven, M. C., 16(44, 45, 49), *110*
Hehre, W. J., 175(37, 38), *218*
Heitler, W., 227(11), 231(11), 269(11), *298*

Helm, H., 98(143), 99(143–145), 100(145), 102(143, 145), *113*
Hemenway, C. P., 16(47), *150*
Hemmer, P. C., 304(12), *429*
Henderson, D., 17(57), 18(57, 58), *110*, 318(75), *431*
Henin, F., 233(21), 234(22), 236(21), 240(26), 267, 295(31), *298*, *299*
Herman, M. F., 172(14), 187(14), *217*
Herring, F. G., 181(56), *219*
Hertel, I. V., 52(110), *112*
Herzberg, G., 20(60), 23(60), *110*
Hessel, M. M., 103(156), *113*
Higginson, B. R., 171(10), 193(10), *217*
Hinze, J., 15(35), 93(35), *110*
Hioe, F. T., 351(100), *432*
Hirosye, T., 394(162, 163), 400(162, 163), *434*
Hirschfelder, J. O., 116(4), 121(41), *164*, *165*, 307(22), *430*
Hiskes, J. R., 188(71), 189(71), *219*
Hodlev, Y. S., 176(41), 177(41), 180(41), 193–195(41), *218*
Hofacker, G. L., 118(39), 126(39), 162(111), *165*, *167*
Hofmann, H., 15(48), 16(48), *110*
Hohenberg, P., 192(105), *220*
Hohlneicher, G., 181(55), *219*
Horowitz, C. J., 136(60), 146(60), *165*
Hougen, J. T., 20(64), *110*
Hubac, I., 173(20), 181(20), 182(20), 184(20, 69), *217*, *219*
Huennekens, J., 103(160), *113*
Hurley, A. C., 188(78), *219*
Hush, N. S., 175(31), 176(31), 188(78), *218*, *219*
Hynes, J. T., 116(16), *164*

Iha, M. K., 195(126), *220*
Imai, M., 404(146), 405(146), *434*
Imai, S., 396(159), 400(159), *434*
Imry, Y., 316(69), *431*
Itô, K., 321(84), 417(26), *430*, *432*
Itzykson, C., 360(107), *432*
Ivanov, B. I., 146(75), *166*

Jadrny, R., 171(9), 193(9), 205(9), 211(9), *217*
Jaffe, A., 417(29), *430*
Jannink, G., 353(103), *432*
Jasnow, D., 374(124), *433*
Jauch, J. M., 227(11), 231(11), 269(11), *298*
Jellinek, J., 151(90, 92), 163(90), *166*
Jemmis, E. D., 216(147), *221*
Jensen, J., 216(145, 146), *221*
Jimenéz, A., 394(168), *434*
John, F., 329(89), 347(89), 381(89), *432*
Johnson, B. R., 55(122), *112*
Johnson, K. H., 187(87), *219*
Johnston, H., 116(3), *164*
Jordan, K. D., 188(72), 189(83), *219*
Ju, G.-Z., 117(17, 18), 118(17, 18, 29), 124(17, 18), 130(17), 132(17), 135(29), 143(17), 147(29), 163, *164*
Judce, D. L., 13(23), *109*
Julienne, P. S., 35(90), *111*

Kac, M., 354(106), 366(106), 417(28), *430*, *432*
Kadanoff, L. P., 319(76), *431*
Kahn, L. R., 174(23), 184(23), *218*
Kang, K., 314(62), *431*
Kapral, R., 429(172), *432*
Karachevtsev, G. V., 176(41), 177(41), 180(41), 193–195(41), *218*
Karlsson, L., 171(9), 193(9), 205(9), 211(9), *217*
Karo, A. M., 188(71), 189(71), *219*
Karplus, M., 116(7), 136(58), 138(61), *164*, *165*
Kastler, A., 36(97), 47(97), *111*
Kato, N., 405(176), 408(176), *434*
Kato, T., 400(164), *434*
Katutani, S., 321(86a), 322(86b), *432*
Kaufmann, E., 216(149), *221*
Kawahara, K., 396(158), 400(158), *434*
Kawasaki, K., 384(131, 132), 385(134), 387(134), 429(132, 171), 414, *433*, *434*
Kaye, J. A., 147(85), 151(85), *166*
Kazyaka, T. G., 17(56), *110*
Kello, V., 184(68), *219*
Kennedy, R. A., 99(148), 100(148), 103(148), *113*
Kenney, J., 188(72, 73), *219*
Khare, V., 128(51), 151(92), *166*
Khokhlov, A. R., 317(72), *431*
Kholodenko, A., 317(74), 342(91b), *431*, *432*
Kielkopf, J., 103(158), *113*
King, H. F., 174(24), *218*
Kirby-Docken, K., 188(70), *219*

Kirkwood, J. G., 370(116), 371(116), 379(129), 383(129), *433*
Kitano, T., 404(146), 405(146, 176), 408(176), *434*
Klimenko, N. M., 178(48), 216(150), 218, *221*
Klyagina, A. P., 194(116), 195(116), 199(116), *220*
Kneba, M., 146(74), *166*
Knight, F., 321(82), *432*
Knipp, J. K., 24(74), 30(74), *111*
Koelling, D. D., 187(90), 192(109), *220*
Kogut, J., 304(7), 319(7), *429*
Kohmoto, M., 370(114), 373(114), 375(114), 376(114, 127), 391(127), 392(114), *433*
Kohn, W., 192(105, 106), *220*
Kolos, W., 31(84), *111*
Kondratjev, V. N., 176(41), 177(41), 180(41), 193–195(41), *218*
Kono, H., 162(108), *167*
Konovalov, S. P., 175(30), 176(30), *218*
Konowalow, D. D., 14(27), 103(27), *109*
Kouri, D. J., 2(1), 4(1), 55(125–127), *109*, *112*, 128(51), 151(90, 92), 163(90), *165*, *166*
Kramers, H. A., 372(118), *433*
Krasnoperov, L. N., 16(51), *110*
Kraulings, E. K., 14(29), *109*
Krause, U., 14(28), *109*
Krauss, M., 35(90), *111*
Krishnan, R., 174(23), 184(23), *218*
Kubo, I., 365(111), *433*
Kulander, K. C., 55(121), *112*
Kuo, H.-H., 365(110), *432*
Kuppermann, A., 116(9–11, 14), 117(11, 14), 121(43, 45), 123(43), 128(11), 129(11), 133(43), 136–138(11), 139 (11, 14), 140(63), 141(11, 63), 147(81, 84, 85), 151(85), *164–166*
Kurata, M., 313(53), 404(175), 406(175b), 407(175a), 431, *434*
Kurmaev, E. Z., 192(100), *220*
Kusch, P., 103(156), *113*
Kutzelnigg, W., 181(59), 186(59), *219*
Kyselka, A., 313(58), *431*

Lacmann, K., 195(123), *220*
Lambropoulos, M. M., 35(92), 36(92), *111*
Lamson, S. H., 192(104), *220*
Landau, L. D., 20(61), 22(61), *110*
Lando, F. J., 216(147), *221*
Lane, N. F., 20(68), *111*
Langow, R. J., 216(147), *221*
Lankard, J. R., 17(56), *110*
Lau, K. H., 116(8), *164*
Launay, J., 20(69), *111*
Lawrence, G. M., 13(24), *109*
Lawrie, I. D., 349(98), 351(98), 391(98), 392(98). *432*
Lebedev, Y. A., 176(41), 177(41), 180(41), 193-195(41), *218*
Lee, A., 389(136), 404(136), 406(136), *433*
Lee, K.-T., 117(17, 18), 118(17, 18, 29–31), 124(17, 18), 128(50), 130(17), 132(17), 135(29, 30, 55), 140(55), 143(17, 67), 144(31), 145(70), 147(29), 153(93), 163, *164–166*
Lee, L. C., 13(23), 14(26), *109*
Lee, Y. T., 147(80), 163(114), *166*, *167*
Lefebvre, R., 56(136–139), *112*
Le Guillon, J. C., 330(90), 404(174), *432*, *434*
Leone, S. R., 3(6), 9(6), 15(48), 16(46, 48), *109*, *110*
LeRoy, D. J., 146(71), *165*
Lester, W. A., 154(96), *166*
Levin, A. A., 191(94, 99), 192(99), *220*
Levine, R. D., 162(111), *167*
Levinson, I. B., 47(109), 67(109), *112*
Levy, D. H., 20(65, 66), *111*
Lifshitz, E. M., 20(61), 22(61), *110*
Light, G. C., 157(99), 158(99), *166*
Light, J. C., 55(121), *112*, 117(20), 118(25), 129(20), 136(20), 163, *164*
Lin, S. H., 116(8), 162(108), *164*, *167*
Lindeman, T. G., 16(41, 47), *110*
Liotard, D., 215(141), *221*
Lipkin, M., 410(151), *434*
Liu, B., 13(25), 98(141), 102(141), *109*, *112*, 136(59), 145(59), 147(78), *165*, *166*, 181(62), 188(70, 80, 81), 193(80), *219*
Lloyd, D. R., 171(10), 193(10), *217*
Lockhart, C., 229(16), *299*
Loge, G. W., 36(103, 104), *111*, *112*
Lowe, J. P., 197(133), *221*
Luke, B., 216(147), *221*
Lukman, B., 181(57), *219*
Lüthy, W., 18(59), *110*
Lyyra, M., 103(157), *113*

Ma, S. K., 304(8), *429*
McCaffery, A. J., 15(33), *110*
McCormack, J., 15(33), *110*
McCrackin, F. I., 394(170), *434*
McCurdy, C. W., 173(21), 181(53), 185(53), *217, 218*
McDermid, I. S., 161(50), *110*
McDiarmid, R., 206(136), *221*
Macek, J. M., 5(12), 85(12), 86(12), 94(12), *109*
McFarlane, R. A., 16(39), *110*
McKean, H. P., Jr., 321(84), *432*
McKenzie, D. S., 303(3), *429*
McKoy, V., 173(21), 181(53), 185(53), *217, 218*
McLean, A. D., 98(141), 102(141), *112*, 178(46, 47), 181(62), *218, 219*
MacPherson, M. J., 36(102), *111*
Macpherson, M. T., 9(14), *109*
McWeeny, R., 173(17), 182(64), *217, 219*
McWilliams, D., 181(56), *219*
Magnen, J., 312(48), *430*
Majid, I., 404(174), *434*
Makita, Y., 404(175), 406(175b), *434*
Malakis, A., 314(64), *431*
Malakis, J., 304(14), *429*
Mallouk, T., 195(128), *221*
Mandelbrot, B., 319(77), *431*
Mandelkern, L., 392(137), *433*
Marcus, R. A., 116(6), 118(38), 126(38), 139(62), *164, 165*
Martinez, E., 16(45), *110*
Martinez-Mekler, G. C., 374(125), *433*
Martur, B. P., 194(124), 195(124), *220*
Marynick, D. S., 189(82), *219*
Massey, H. S. W., 53(112), *112*, 170(13), 172(13), 193(13), 194(13), 199(13), *217*
Mattsson, L., 171(9), 193(9), 205(9), 211(9), *217*
Mayné, F., 227(8, 9), 230(20), 240(8, 9, 26), 248(28), 258(27, 28), 293(27, 28), 298(32), *298*
Mayne, H. R., 143(68), *165*
Mazur, P., 116(5), *164*
Medvedev, V. A., 176(41), 177(41), 180(41), 193–195(41), *218*
Mentall, J. E., 12(19), *109*
Mesmer, R. P., 192(104), *220*
Meyer, J. E., 170(3), 193(3), *217*
Meyer, W., 180(50), 181(60), 186(60), 188(50), 189(50), *218, 219*
Mies, F. H., 20(67), *111*
Mikhailov, G. M., 192(103), *220*
Miller, T. A., 20(65), *111*
Miller, W. H., 116(13), 118(35, 36, 40), 126(40), 163(112), *164, 165, 167*
Misra, B., 225(2), 226(4, 7), 227(7), 229(16), 261(2), 267, *298*
Mitchell, O. N., 146(71), *165*
Miyake, A., 410(153), *434*
Miyaki, Y., 394(160, 162, 165), 399(160), 400(162), *434*
Miyaso, K., 400(164), *434*
Mizutani, K., 400(164), *434*
Moiseiwetsch, B., 170(5), 172(5), 193(5), *217*
Montroll, E. W., 321(85), *432*
Moore, F. W., 199(134), *221*
Moore, M., 103(154), *113*, 313(61), 315(61), 374(124), *431, 433*
Morokuma, K., 116(7), *164*
Morse, M. D., 55(115–120), *112*
Mortensen, E. M., 117(22), *164*
Moscowitz, J. W., 174(26), *218*
Moseley, J. T., 9(16, 17), 18(16, 17), 99(144–146), 100(145), 102(145, 146, 152), *109, 113*
Mott, N. F., 53(112), *112*
Muckerman, J. T., 147(83), *166*
Mulliken, R. S., 12(20), 16(40), 29(78–82), *109–111*
Mullins, O. C., 36(107), *112*
Muthukumar, M., 311(35), 372(119), *430, 432*

Nagasawa, H., 405(176), 408(176), *434*
Nagasawa, M., 400(164), 404(146), 405(146), *434*
Nakanishi, A., 367(112), 407(147), 409(147), *433, 434*
Napiorkowski, M., 304(12), *429*
Nemoto, N., 404(175), 406(175b), 407(175a), *434*
Nesbitt, D. J., 15(48), 16(48), *110*
Neumark, D. M., 147(80), 163(113, 114), *166, 167*
Newton, R. G., 227(11), 231(11), 269(11), *298*
Ng, D., 429(172), *434*

Nickel, B., 311(35), *430*
Nicolis, G., 229(19), *298*
Niemax, K., 103(159), *113*
Nienhuis, B., 314(63), *431*
Nikitin, E. E., 103(153), *113*
Nikitin, M. I., 195(127), *220*
Nikomarov, E. S., 410(154), *434*
Noda, I., 400(164), 404(146), 405(146, 176), 408(176), *434*
Noga, J., 184(68), *219*
Norisuye, T., 396(158), 400(158), 403(143), *434*
Norman, J. G., Jr., 194(112), *220*
Nose, T., 400(161), *434*
Numrich, R. W., 31(85, 86), *111*

Ohno, K., 13(25), *109*
Ohrn, Y., 174(28), 176(28), 189(28), *218*
Ohta, T., 331(91a), 333(91a), 344(91a), 354(104), 404(145), 405(145), 411(156), 414, 421(126), *432–434*
Okabe, H., 3(5), 9(5), *109*
Okara, S., 13(25), *109*
Oldman, R. J., 16(43), *110*
Olson, M. L., 14(27), 103(27), *109*
Olson, R. E., 188(80), 193(80), *219*
Omont, A., 35(94), 36(94), 45(94), 47(94), *111*
Onuki, A., 384(132), 429(132), *433*
O-Ohata, K., 108(70), *219*
Oono, Y., 311(41, 42), 313(60), 314(68), 315(60, 65, 67, 68), 316(65, 68), 317(71), 319(65), 331(91a), 333(91a), 344(91a), 345(42), 349(98), 351(98, 99), 368(113), 370(114, 115), 373 (114), 375(114), 376(114, 127), 384(130), 389(136), 391(98, 115, 127), 392(98, 114), 397(115), 398(115), 404(136, 145), 405(145), 406(136), 410(151), 421(126), *430–434*
Ortiz, J. V., 174(28), 176(28), 189(28), *218*
Oyama, T., 315(66), 317(71), 367(112), 407(147), 409(147), *431, 433, 434*

Pack, R. T., 121(42), *165*
Page, F. M., 170(4), 193(4), *217*
Painter, G. S., 187(88), *219*
Pamidimukkala, K. M., 158(100), 159(104), 160(100), *166*
Panfilov, V. N., 16(51), *110*
Partridge, H., 189(84), *219*
Peacock, R. D., 194(120), 199(135), *220, 221*
Pechukas, P., 116(12), 127(49), 141(65), *164, 165*
Pelzer, H., 116(1), *164*
Perdew, J. P., 192(108), *220*
Perić, M., 13(25), *109*
Perminov, A. P., 146(75), *166*
Peterson, A. B., 16(42), *110*
Peterson, K. I., 213(144), *221*
Peyerimhoff, S. D., 13(25), *109*, 181(63), *219*
Pfeuty, P., 304(9), *429*
Pichler, G., 103(154, 155, 159), *113*
Picot, C., 353(103), *432*
Pollak, E., 127(49), 141(65, 66), 151(89), *165, 166*
Ponomarev, A. N., 146(75), *166*
Pople, J. A., 174(23), 175(37, 38), 184(23), 216(147–149), *218, 221*
Poquet, E., 215(141), *221*
Porter, R. F., 216(142, 143), *221*
Porter, R. N., 136(58), 138(61), *165*
Potapov, V. K., 176(41), 177(41), 180(41), 193–195(41), *218*
Prentice, J. J., 410(152), *434*
Presser, N., 158(103), 159(103), *166*
Prigogine, I., 225(1, 2), 226(3–7), 227(7–10), 228(13, 14), 229(16, 19), 233(21), 235(1), 236(21), 240(7, 9), 258(27), 260(13), 261(1, 2), 262(1), 264(29), 265(1), 267(1), 293(27), *298, 299*
Prins, P., 193(110), 194(110), *220*
Pritchard, M. J., 403(141), *434*
Ptitsyn, O. B., 313(54), *431*
Pyatenko, A. G., 195(130), *221*
Pyun, C. M., 372(121), *433*

Racak, G., 35(91), *111*
Raffenetti, R., 154(95), *166*
Raimondi, D. L., 178(47), *218*
Reck, G. P., 194(124), 195(124), *220*
Redmon, M. J., 147(87), 151(87), *166*
Redner, S., 304(15, 19a), 314(62), *429–431*
Reinhardt, P. W., 177(119), 194(119), 195(119), *220*
Reinhardt, W. P., 56(134), *112*
Reiss, H., 313(55), *431*

Rescigno, N., 173(21), 181(53), 185(53), *217*, *218*
Résibois, R., 228(14), *298*
Reynolds, P. J., 304(15, 19a), *429*, *430*
Richards, W. G., 35(89), *111*
Riley, S. J., 16(53), 17(53–55), *110*
Riseman, J., 370(116), 371(116), *433*
Robinson, G. N., 163(114), *167*
Roget, G., 36(105), *112*
Rohrlich, F., 227(11), 231(11), 269(11), *298*
Roig, A., 313(53), *431*
Romanowski, H., 135(55), 140(55), 162(110), *165*, *167*
Rondelez, F., 403(141), *434*
Roos, B., 175(36), *218*
Ros, P., 191(91, 95), *220*
Rosen, A., 192(102), *220*
Rosenfeld, L., 226(3), 233(21), 236(21), *298*
Rosenkrantz, M. E., 14(27), 103(27), *109*
Rosmus, P., 180(50), 188(50), 189(50), *218*
Ross, J., 116(5), 129(54), *164*, *165*
Ross-Murphy, S., 311(39), *430*
Rothe, E. W., 194(124), 195(124), *220*
Roueff, E., 20(69), 99(146), 102(146, 150–152), *111*, *113*
Rubin, R. J., 310(31), *430*
Rudny, E. B., 194(118), *220*
Rys, J., 174(24), *218*

Sabelli, N. H., 15(35), 93(35), *110*
Sachs, E. J., 15(35), 93(35), *110*
Saitô, N., 310(34), *430*
Salanub, D. R., 192(104), *220*
Sams, W. N., 55(126, 127), *112*
Sander, R. K., 16(38, 43), 36(38), 85(38), *110*
Sarma, G., 353(103), *432*
Sasaki, F., 180(51), 188(51), *218*
Satchler, G. R., 21(70), 25(70), 45(70), *111*
Saxon, R. P., 13(25), *109*
Schaefer, D. W., 364(108), 407(108), 409(108), *432*
Schaefer, H. F., III, 173(16), 177(16), *217*
Schäfer, L., 343(95, 96), 391(95), 404(95, 96), 407(148), 412(148), *432*, *434*
Schalow, A. L., 123(47), 127(47), *165*
Schatz, G. C., 116(11), 117(11), 118(11, 26), 121(43, 45), 123(43), 129(11, 54), 133(43), 136–139(11), 140(63), 141(11, 63), 144(69), 145(69), 147(81), 153(93), 162(105), 163, *164–167*
Scheraga, H. A., 392(137), *433*
Schinke, R., 154(96), *166*
Schlegel, H. B., 174(23), 184(23), *218*
Schleyer, R. V. R., 216(149–149), *221*
Schmidt, M., 394(169), *434*
Schonhammer, K., 188(75), *219*
Schwartz, S. D., 118(35, 36)*164*
Schwartz, T., 403(143), *434*
Seeger, R., 174(23), 184(23), *218*
Seitz, W. A., 351(102), *432*
Sénéor, R., 312(48), *430*
Sham, L. J., 192(106), *220*
Shapir, Y., 315(67), *431*
Shapiro, B., 304(11), *429*
Shapiro, M., 3(7), 56(131–133), *109*, *112*, 129(53), 162(107), *165*, *167*
Sharma, R. D., 138(61), *165*
Sharp, T. E., 11(18), *109*
Sharpless, R. L., 14(26), *109*
Shavitt, I., 181(61), *219*
Sherrod, R. E., 194(114), 195(114), *220*
Shiokawa, K., 315(66), *431*
Shiren, N. S., 17(56), *110*
Shirkov, D., 229(17) *298*, 326(87), *432*
Shiwa, Y., 384(133), 385(134), 387(134), 414, *433*
Shobatake, K., 147(80), *166*
Sidorov, L. N., 170(8), 172(8), 176(8), 193(8), 194(8, 118), 195(8, 127), 196(8, 115), *217*, *220*
Siegbahn, K., 171(9), 193(9), 205(9), 211(9), *217*
Siegbahn, P., 136(59), 145(59), *165*, 175(36), *218*
Siegert, A. F. J., 56(135), *112*
Simmons, R. O., 414
Simons, J., 9(13, 14), 36(101, 102), *109*, *111*, 174(29), 176(29), 181(54), 185(54), 188(29, 72–74, 76, 77), 189(76, 83), *218*, *219*
Singer, S. J., 4(8–11), 22(8), 36(8, 108), 39(8), 40(8), 44(108), 48(108), 49(108), 55(11, 123, 124), 56(130), 84(8), 93(9, 10), 94(9, 10), 95(9, 10), 96(9, 10), 97(10), 99(11, 147), 102(11, 147), 103(123, 147), *109*, *112*, *113*
Skinner, G. B., 158(100), 159(104), 160(100), *166*
Skodje, R. T., 118(37), *164*

Skokan, E. V., 195(127), *220*
Slanger, T. G., 14(26), *109*
Slater, J. C., 187(85, 86), 192(86), *219*
Smirnov, B. M., 172(12), 193(12), 194(12), 199(12), *217*
Smith, D., 188(76), 189(76), *219*
Smith, I. W. M., 16(42), *110*
Smith, W. D., 181(54), 185(54), *218*
Smoljar, A. E., 178(48), 191(97), *218*, *220*
Snijders, J. G., 187(89), 191(98), *220*
Snyder, L. C., 174(26), *218*
Softley, T. P., 99(148), 100(148), 103(148), *113*
Solomonik, V. G., 175(30), 176(30), *218*
Sorokin, I. D., 195(127), *220*
Sorokin, P. P., 17(56), *110*
Sparks, R. K., 147(80), *166*
Spencer, T., 307(21), 322(21), *430*
Spitzer, F., 320(79), *431*
Srivastava, R. D., 176(42), *218*
Stanley, H. E., 304(19a), 404(174), *430*, *434*
Stechel, E. B., 117(20), 129(20), 136(20), *164*
Steiner, R., 182(64), *219*
Stockmayer, W. H., 310(33), 313(53), 399(140), *430*, *431*, *433*
Stoll, W., 52(110), *112*
Stone, E. J., 13(24), *109*
Struve, W. S., 55(123), 103(123, 108), *112*
Stwalley, W. C., 103(155), *113*
Su, T.-M. R., 17(54, 55), *110*
Suck, S. H., 151(91), 163(91), *166*
Sudarshan, E. G. C., 278(30), *299*
Sukhanov, L. P., 175(32), 199(32), *218*
Sun, H., 55(124), *112*, 181(58), *219*
Sutcliffe, B. T., 173(17), *217*
Sutton, P. P., 170(3), 193(3), *217*
Suzuki, H., 311(39), *430*
Symanzik, K., 312(44), *430*

Tanaka, G., 311(36), 311(43), 372(120), 396(159), 400(159), *430*, *433*, *434*
Tanaka, K., 13(25), *109*
Tatewaki, H., 13(25), *109*
Taylor, P., 175(31), 176(31), 188(78), 194(120), *218–220*
Taylor, S. J., 321(86a), *432*
Teramoto, A., 396(158), 400(158), *434*
Teramoto, E., 310(30), *430*
ter Meer, H. U., 394(166), 400(166), *434*
Thaddeus, P., 98(142), 102(142), *112*
Thrush, B. A., 158–160(101), *166*
Topiol, S., 174(23), 184(23), *218*
Toulouse, G., 304(9), *429*
Townes, C. H., 123(47), 127(47), *165*
Triverdi, H. P., 35(89), *111*
Truhlar, D. G., 31(85, 86), *111*, 116(9, 15, 16), 117(21), 118(37), 127(15, 48), 135(57), 136(57, 60), 139(21), 141(64), 146(60), 163(57), *164*, *165*
Tsigdinos, G. A., 199(134), *221*
Tsunashima, Y., 404(175), 406(175b), 407(175a), *434*
Turner, D. W., 171(11), 193(11), *217*

Uang, Y. H., 103(155), *113*
Urban, M., 173(18), 177(18), 181(18), 182(18), 184(18, 68, 69), *217*, *219*
Uy, O. M., 176(42), *218*

Vanagas, V. V., 47(109), 67(109), *112*
van Brunt, R. J., 36(100), *111*
van der Avoird, A., 191(98), *220*
Van Hove, L., 228(12), *298*
van Regenmorter, H., 102(150), *113*
Van Vleck, J. H., 34(87, 88), *111*
Vasudevan, K., 188(79), *219*
Vidakovic, P., 403(141), *434*
Vigué, J., 36(105, 106), *112*
Virk, P. S., 410(155), *434*
von Niessen, W., 173(22), 177(22), 186(22), 188(22, 75), 189(22), *217*, *219*
Voronin, A. I., 103(153), *113*
Vosko, S. H., 192(107), *220*

Wagner, A. F., 153(93, 94), 163, *166*
Wahl, A. C., 182(65), *219*
Walch, S. P., 153(94, 95), *166*, 189(84), *219*
Walker, R. B., 117(20), 118(25, 34), 129(20), 135(34, 57), 136(20, 56, 57), 145(70), 147(86), 151(56), 163(56, 57, 115), 163, *164–167*
Wall, F. T., 351(101, 102), *432*
Watson, K. M., 227(11), 231(11), 269(11), *298*
Webb, I. D., 194(125), *220*
Weber, H. P., 18(59), *110*
Weill, G., 393(138), 399(138), 403(138, 143), *433*, *434*
Weinberg, S., 229(18), *298*

Weisheit, J. C., 20(68), *111*
Weiss, G. H., 321(85), *432*
Wellhausen, U., 146(74), *166*
Westburg, K., 157(98), 158(98), *168*
Westenberg, A. A., 146(72), 158(102), 159(102), *165*, *166*
Westwater, M. J., 312(45), *430*
Wheller, R. C., 170(4), 193(4), *217*
White, J. C., 17(57), 18(57, 58), *110*
Whiteside, R., 174(23), 184(23), *218*
Whittington, S. G., 303(2), 340(2), 429(172), *429*, *434*
Wiesenfeld, J. R., 16(39, 41, 47); *110*
Wigner, E., 116(1), *164*
Wilemski, A., 372(120), *433*
Wilk, L., 192(107), *220*
Williams, B. W., 216(142), *221*
Williams, C., 99(147), 102(147), 103(147), 108, *113*
Wilmers, G., 344(97), *432*
Wilson, C. A., 374(125), *433*
Wilson, K. G., 304(7), 319(7, 78), 328(88), 329(88), 333(88), *429*, *431*, *432*
Wilson, K. R., 16(37, 38, 43, 53), 17(53), 36(38), 85(38), *110*
Wiltzius, P., 364(108), 407(108), 409(108), *432*
Witten, T. A., Jr., 343(95, 96), 391(95), 404(95, 96, 144), *432*, *434*
Wodarczyk, F. J., 16(46), *110*
Wodtke, A. M., 163(114), *167*
Wolfrum, J., 146(74), *166*
Wunderlich, W., 394(166), 400(166), *434*
Wurthwein, E. U., 216(147–149), *221*
Wyatt, R. E., 117(19), 118(24, 32), 121(44), 123(46), 127(46), 129(19), 135(32), 136(19), 147(87, 88), 151(88, 89), 163, *164–166*

Xing-Guo, Z., 162(108), *167*
Xing-Wen, L., 162(108), *167*

Yaglom, A. M., 309(25), *430*
Yamakawa, H., 303(1), 310(1), 311(1, 36), 327(1), 371(1), 383(1), 392(1), 396(159), 400(159), *429*, *430*, *434*
Yamazaki, K., 411(156), *434*
Yanson, M. L., 14(29), *109*
Yeager, D. L., 172(14), 173(21), 181(53), 185(53), 187(14), *217*, *218*
Yeung, E. S., 35(95), 36(95), *111*
Yoshimine, M., 13(25), 98(141, 142), 102(141, 142), *109*, *112*, 178(47), 180(51), 181(62), 188(51), *218*, *219*
Yutsis, A. P., 47(109), 67(109), *112*

Zakzhevskii, V. G., 175(33), 216(150), *218*, *221*
Zare, R. N., 15(30), 36(99, 100, 102–104), 52(111), 85(99), 94(111), *109*, *111*, *112*, 146(77), *166*
Zevgolis, D., 15(34), *110*
Zhi-Ding, Q., 162(108), *167*
Ziegler, T., 187(89), *220*
Zimm, B., 310(33), 394(167), *430*, *434*
Zinn-Justin, J., 312(49), 330(90), 404(174), *431*, *432*, *434*
Zuber, J. B., 360(107), *432*
Zwanger, A., 192(108), *220*
Zwanzig, R., 372(123), *433*

SUBJECT INDEX

Ab initio electronic calculations, 34
  for electron affinity calculations, 173
Adiabatic approximation, 54, 56, 90–92
  boundary conditions, 58
  Schrödinger equation, 122
Adiabatic bending energy, 125, 144
Adiabatic Born-Oppenheimer (ABO)
    electronic state, 19, 21
Adiabaticity and coupling, 162
Adiabatic radial wave functions, 58
Adiabatic vibrational eigenvalue, 126
Adjoint-symmetry, 239
Aluminum hydride, electron affinity, 188
Aluminum tetrafluoride, 199
Ammonia, electron affinity, 189
Ammonium, ionization potential, 214
Angular momentum, 2
  operator, 122
  quantum number, 119
  recoupling coefficient, 29
Antimony hexafluoride, 200
Approximate universal relations, 395
Approximation, 34
  adiabatic, 122, 123
  centrifugal sudden, 121
  coupled electron pair, 181
  decoupling, 118
  independent electron pair, 181
  recoil, 5, 54, 60
  reduced-dimensionality, 120
Arsenic hexafluoride, 200
Artificial channel method, 56
Asymptotic operators, 269
Asymptotic power laws, 330
Asymptotic states, 270
Atmospheric physics, 9
Atomic basis functions, 19, 61
Atomic orbitals, bonding energies, 196
Atomic sphere, electronic density, 190

Bare friction coefficient, 379
Bare perturbation, 310
  difficulty, 311
Baumgartner's simulation, 413
Beam scattering, molecular, 105
Bending:
  eigenfunctions, 123, 127
  eigenvalues, 122, 123, 127
  excited states, 130
  full adiabatic, 124
  ground state, 139
  partition functions, 132
Bending-corrected rotating linear model
    (BCRLM), 118, 135
  for $F + H_2$ ($v = 0$) reaction, 151
Benzene, ionization potential, 171
Beryllium atom, 184
Beryllium fluoride, 199
Beryllium hydride, electron affinity, 188
Binary collisions, 321
  renormalized, 322
Binary fluid critical dynamics, 384
Binary interaction, effective, 336
Black body radiation, 229
Blob argument, 352
Block-diagonality property, 238
Bohr frequency, 54
Boltzmann constant, 404
Boltzmann equation, 259–261
  quantum analog, 260
Boltzmann's entropy, 261
Bond polarity, 199
Borel summability, 312
Born-Haber cycle, 170
Born-Oppenheimer approximation, 2
Boron hydride, electron affinity, 188
Boron oxide, electron affinity, 193
Boron tetrachloride, 199
Boron tetrafluoride, 199
Boundary conditions, 58, 416
  asymptotic, 40
Brillouin theorem, 186
Bromine molecule, photodissociation, 16
Brownian movement, 383

Carbon, electron affinity, 188
Carbon hydride ion:
  photodissociation:
    resonance peaks, 99
    theoretical models, 102
  photodissociation rate, 102
  photofragment spectroscopy, 99
  potential energy curves, 99
Central limit theorem, 320
Centrifugal potentials, 135
Centrifugal sudden approximation, 121
CEQB rate constant, 132
CEQB theory, 124
  applications, 136–160
    D + H_2 (v = 0, 1) reaction, 145
    H + H_2 (v = 0) reaction, 136
    H + H_2 (v = 1) reaction, 141
  cumulative reaction probability, 137
  for differential cross section, 126, 140
CEQB transmission coefficient, 139
CEQ theory, 126
  applications, 136–160
    F + H_2 (v = 0) reaction, 147
    F + HD (v = 0) reaction, 151
    H + H_2 (v = 0) reaction, 136
    H + H_2 (v = 1) reaction, 141
CEQ transmission coefficient, 139
Cesium, first ionization potential, 212
Cesium fluoride, ionization potential, 213
Cesium iodide, photo dissociation, 17
Cesium molecule, 15
Charge-transfer reactions, 170
Chemical compounds, electron affinity, 169–221
Chlorate, electron affinity, 193
Chloride, electron affinity, 189
Chromium hexafluoride, electron affinity, 207
Clebsch-Gordan coefficients, 40
Cloizeaux law, 365
Cluster integral, 314
Coarse-graining, 319
Coil-globule transition, 313
Collinear exact quantum, *see* CEQ theory
Collision(s):
  processes, 258
  superoperator, 240
  two-body, 259
Combustion, 9
Complex coordinate rotation, 56
Contour length, 369
Contour variable, 309
Coriolis coupling, 7, 21, 23, 31
Coriolis interaction matrix, 34
Correlation(s):
  contributions, 181
  dynamics, 233
  energy, configuration interactions, 181
  length calculation, 365
  and perturbation, 184
  theorem in dynamics of, 234
Coulomb interactions, 31
Coulomb interelectronic interaction potential, 173
Coulomb potentials, 189
Coupled electron pair approximation, 181
Coupling:
  and adiabaticity, 162
  Hund's case, 16, 20, 26, 29, 70, 76
  hyperfine, 31
  intramolecular, 63
Crossed molecular beam experiments, 6
Crossover behavior, 329
  of intrinsic viscosity, 381
Crossover rate, 399
Cross section:
  definition, 231
  degeneracy averaged, 120
  differential, 133, 135
  rotationally averaged, 120
Crystal lattice, energy, 170
Cumulative reaction probability, 120, 130, 136
  approximation to, 123
Curve crossing, 64
Cut-off parameter, 309
Cyanide, electron affinity, 188

Debye theory, 322
Decoupling approximations, 118
Delta (δ)-function, 323, 354
Density distribution function, 307
  for end-to-end vector, 331
  functional form, 339
Density matrix, 41, 43, 228
  analysis of, 44
  diagonal elements, 248
  off-diagonal elements, 248
  in starunitary sector, 248
Density operator:
  diagonal elements, 264

Liouville-von Neumann equation for, 267
Depolarization coefficient, 85, 89
Diabetic approximation, *see* Recoil approximation
Diagonalization, superoperator, 294
Diatomic molecule:
  Hamiltonian for, 31
  photodissociation, 1–113
Diffuse functions, 179
Diffusion constant, 372
  translational, 393
Diffusion equation, 385
  Green's function, 416
Dilation factor, 329
Dimensional analysis, 310, 363
Dimensionless coupling constant, 332
Dimensionless parameters, 324
Dipole moment, 85
  molecular integrals, 42
Dipole transition moment, 10
Dirac interaction, 269
Dirac-Slater equations, 187
Dissociation:
  heterolitic, 212
  single-photon, 6, 36
  two-photon, 97
Dissociation energy, 54
Distribution function, 259
Donsker's δ-function, 365
Dual-space operators, 64
Dynamical scattering factor, 388
  initial decay rate, 389, 404
Dyson equation, 186

Edwards Hamiltonian, 310
  dimensional analysis, 373
  expansion parameter, 327
  reparameterization invariance, 330, 339, 347
Edwards model, 309, 323
Electrical conductivity, 212
Electron affinity:
  adiabatic, 170
  of ammonia, 189
  of antimony hexafluoride, 200
  arsenic hexafluoride, 200
  atomic, 196
  of beryllium hydride, 188
  and bond polarity, 199
  of boron hydride, 188
  of carbon, 188
  of chemical compounds, 169–221
  of chlorate, 193
  of chloride, 189
  of chromium hexafluoride, 207
  comparison of experimental and theoretical values, 180
  of cyanide, 188
  definition, 170
  and electronic structure of radicals, 193
  of fluorine, 188
  of gold hexafluoride, 203
  of halogens, 197
  high values, 197–198
  of hydrogen atom, 199
  of hydroxide, 188
  and ionization potential, 171
  of lithium, 188
  of lithium hydride, 188
  and lowest unoccupied molecular orbital, 196
  of magnesium fluoride, 200
  of magnesium hydride, 188
  and molecular structure, 193–216
    effect of atomic electron affinity on, 196
    and electron delocalization, 197
  and number of ligands, 211
  of ozone, 188
  of phosphorus hydride, 189
  of potassium, 189
  radiation damage, role in, 170
  and redox reaction, 170
  relativistic contributions, 177
  and relaxation energy, 179
  of rubidium, 189
  of selenium hexafluoride, 199
  of silicon hydride, 188
  of sodium, 189
  of sodium hydride, 188
  of sulfur dioxide, 189
  of sulfur hexafluoride, 199
  of sulfur hydride, 188
  of tetraoxyanions, 209
  vertical, 170
Electron affinity calculation:
  accuracy, 192
  comparison of methods, 192
  with correlation, 180
  dependence on basis, 179
  by discrete variation method, 190

Electron affinity calculation (*Continued*)
equation-of-motion method, 185
Green's function method, 185
Hartree-Fock-Roothaan method, 173
for large molecules, 192
nonvariational methods, 183
perturbation technique, 183
theoretical methods, 172-193
X_α methods, 187-192
Electronegativity, 170
Electron excitation, and configuration interactions, 182
Electronic angular momentum, 25
Electronic correlation energy, 180
self-consistent multiconfigurational method, 182
Electronic density, 189
Electronic orbital, 24
Electron impact fragmentation, 170
Electron orbital energy, 174
Electron propagator technique, 181
Electron spin, 26
Elementary particles, instability, 229
Elongation flow, 411
End-to-end distance, 310
expansion factor, 311
normalized, 343
End-vector distribution, 343
temperature dependence, 350
universal form, 348
Energy conservation, 39
Energy superoperator, 240
Engineering dimension, 310
Entropy conservation, 224
Equation of motion method, 181, 185
Equilibrium distribution, 265, 387, 426
Equilibrium statistical mechanics, 306
Equilibrium sublimation, 170
Euler angles, 22
Euler's constant, 334, 361
Evolution operator, 224
Exchange-correlation potential, 189
Excited state lifetime, 10
Excluded-volume interaction, 304
perturbation calculations, 327
Excluded-volume parameter, 308, 359
Expansion coefficients, 272
Expansion factor, 311
nonuniversality of, 350
Expansion parameter, for Edwards Hamiltonian, 327
Exponent γ, 340

$F + H_2$ ($v = 0$) reaction, 147
$F + HD$ ($v = 0$) reaction, 151
Feynman-Kac formula, 357, 416
for Green's function, 417
Field theory, 229
Flory effect, 304
Flory-Scheraga-Mandelkern parameter, 392
Flory's P factor, 393
Fluctuation-dissipation theorem, 384
Fluorescence:
cross section, 49
laser induced, 5
from photofragments, 38, 50
polarization of, 4, 86
Fluorine, electron affinity, 188
Fock space, 241
Fokker-Planck formalism, 425
Four-body interactions, 318
Fourier transform, 341
and δ-function, 366
Fredholm determinant, 360
Free-draining theory, 379
Gaussian limit, 379
Rouse coordinate, 386
self-avoiding limit, 379
Free energy, 333
Free-rotor states, 127
Friction coefficient, translational, 372, 379, 391
and Stokes formula, 415
Full-diffusion equation, 425

Gases, dilute, 259
Gaussian distribution, 308, 331
Gaussian self-avoiding crossover, 345
Gaussian stochastic fields, 356
Gaussian white noises, 384
Geometrical matrix, 64
Gold hexafluoride anion, 198
Green's functions, 181, 416
Ground state bending energy, 139

Halogens, electron affinity, 197
Half-collision operator, 42, 64
Hamiltonian:

evaluation of matrix elements, 31–34
fixed-point, 321
microscopic, 322
nonuniqueness of, 316
renormalized, 319
spin-orbit, 35
Hamiltonian operator, 225
Hartree-Fock-Roothaan method, 173–180
MO-LCAO approximation, 173
Heisenberg equation, 238
HF laser, 147
High temperature expansion, 311
Highest occupied molecular orbital:
antibonding, 197, 213
bonding, 199
Hilbert space, 225
Homotopy expansion, 367
Homotopy parameter, 368
H-theorem, 258
Hund's case coupling, 16, 20, 26, 29, 70, 76
Hydrodynamic perturbation theory, 373
Hydrogen atom, electron affinity, 199
Hydrogen-hydrogen atom reaction, rotationally averaged cross sections' calculations, 137
Hydrogen iodide, potential energy curves, 16
Hydrogen ion, photodissociation, 18
Hydrogen molecule:
branching ratio, 12
photodissociation studies, 11
potential energy curves, 11
Hyperfine coupling, 31
Hyperlithium compounds, 216

Idempotence and orthogonality, 246
Idempotent operator, 184
Independent electron pair approximations, 181
Inductive effect, 170
Interaction parameter, renormalization, 336
Interactions:
cumulative effect, 316
effective potential, 308
interelectronic, 189
matter-radiation field, 52
Interdimensional scaling, 316
Interference, 74
Intermolecular forces, 2
Internuclear vector, 21
Intramolecular coupling, 63
Intrinsic viscosity, 381
Intrinsic viscosity constant, 392
Invariant embedding, 56
Inversion symmetry, 22, 28
Iodine bromide, potential energy curves, 15
Iodine molecule:
potential energy curves, 15
two-photon dissociation, 16
Ionization potential, 171
of cesium fluoride, 213
Green's function method, 185
and highest occupied molecular orbital, 196
of lithium chloride, 213
of lithium fluoride, 213
of lithium nitride, 214
of lithium oxide, 214
of lithium sulfide, 214
of sodium fluoride, 213
of sodium oxide, 214
of sodium sulfide, 214
Ion-molecular reactions, and electron affinity, 170
Ion photofragment spectroscopy, 18, 99
Ions, photodissociation dynamics, 9
Irreversibility, 223
microscopic formulation, 223
and second law of thermodynamics, 224
Isomorphism, 282
Isotope effect, 158

Kac's method, 355
stochastic field, 366
Kadanoff transformation, 319
Kinetic energy operator, 126, 189
Kirkwood full-diffusion equation, 383
Kirkwood-Riseman equation, 371
Kirkwood-Riseman theory, 370
Koopmans' theorem, 174
Kramers' formula, 374
K-tolerant walk, 314, 316

Laplace transform, 233, 261
Laser isotope separation, 9
Laser photo detachment technique, 170
Lattice energy measurement, 170
Lattice polymer model, 418
Lattice random walk, *see* Random walk, lattice
LCAO coefficients, 215

Least square, 191
Legendre polynomial, 133
Length scale, phenomenological, 324
Light-detection technology, 170
Line broadening, 103
L-inversion, 238, 248
Liouville space, 35
Liouville space operators, 41, 224
Liouville-von Neumann equation, 226
  for density operator, 267
  solution, 233
Lippman-Schwinger equation, 275
Lithium, electron affinity, 188
Lithium chloride, ionization potential, 212, 213
Lithium fluoride:
  electron affinity, 188
  ionization potential, 213
Lithium hydride, electron affinity, 188
Lithium iodide, photodissociation, 17
Lithium nitride, ionization potential, 214
Lithium oxide, ionization potential, 214
Lithium sulfide, ionization potential, 214
Lyapunov functions, 258, 293

Magnesium chloride, 199
Magnesium fluoride, electron affinity, 200
Magnesium hydride, electron affinity, 188
Manganese octafluoride, 211
Markovian property, 416
Matter-radiation field interaction, 52
Mean-field theory, 306, 313–316
  failure of, 316
Mean-square end-to-end distance, calculation, 341
Mean-square radius of gyration, 343
Mercury hexafluoride, 203
Metal halides, photodissociation, 16
Molecular basis functions, 18
Molecular electronic states, 2
  symmetry, 6
Molecular phosodissociation, 170
Molecular transition amplitude, 45
Molecular weight, 351
  distribution function, 355
Molecules:
  beam experiments, 147
  eigenstates, 22
  electronic structure, and electron affinity, 193–216
  models for identification, 193
  orbitals:
    bonding energies, 196
    localized, 198
  rotational-vibrational states, 10
Möller matrix, 245
Möller operators, 228, 270
Molybdenium hexafluoride, 199
Momentum, 268
Monocorrelation propagator, 249
Monomer density field, 309, 365
  correlation length, 365
  fluctuation, 315
Monomer-monomer effective interaction, 307
Monomers, hydrodynamic interaction, 371
Motion, instability of, 226
Mulliken population analysis, 190
Multiphoton dissociation, 47
Mulitiphoton ionization, 5
Multiplicative constant, 367

Navier-Stokes equation, 322
Negative ions, relativistic energies, 178
Neutral atoms, relativistic energies, 178
Nitrate, electron affinity, 193
Nitrogen dioxide, electron affinity, 170
Nitrogen ion, photodissociation, 18
Nonadiabatic interaction, 3–8, 52
  dynamical approximations, 52
Nondraining Gaussian limit, 379
Nondraining self-avoiding limit, 379
Non-mean field theory, 316
Non-Newtonian effects, 384
Nontrivial fixed point, 363
Nuclear rotational coordinate, 19
Numerov method, renormalized, 55

One-dimensional reaction path theory, 126
One-photon dissociation:
  branching ratios, 77
  fluorescence anisotropy parameters, 76
Optical pumping, 17, 47
Orthogonality and idempotence, 246
Orthogonal projections, 237
Orthogonal transformations, 19
Oscillations, superposition, 256
Oseen tensor, 371, 383
  dimension of, 373
  Fourier transform, 428
Osmotic compressibility, 406

Osmotic pressure, 330
  bare perturbation result for, 360
  and degree of polymerization, 363
  and polymer number density, 363
  renormalization of, 362
  renormalization group equation, 363
  universal form, 364
Osmotic second virial coefficient, 391
Oxygen, photodissociation, 13
Oxygen atom, excited, 13
Oxygen ion, photodissociation, 18
Oxygen molecule, potential energy curves, 13
Ozone electron affinity, 188

Pair natural orbital configuration interaction method, 181
Parity, *see* Inversion symmetry
Partial differential equations, 161
Partial-draining effect, 382
Partial waves, 6
Partition function, 306, 354
  calculation, 357–360
Path integrals, 309
Penetration function, 393
Perturbation expansion, 278
  hydrodynamic, 373
  regularization procedure, 284
  renormalized, 328
Perturbation series, 276
Perturbation theory, 36, 102, 181
Phase transition, 419
Phenomenological description, 326
Phenomenological limit, 325
Phenomenological parameters, 322
Phenomenological theory, 322
  minimal model, 323
Phosphorus hexafluoride, 199
Phosphorus hydride, electron affinity, 189
Photodetachment method, 170
Photodissociation, 2
  angular distribution of photofragments, 4
  atomic region, 7, 19
  branching ratios, 4
  coupling region, 19
  dynamics, 18
  experiments, 6, 9–18
  magnetic sublevels, 42
  molecular region, 7, 19
    adiabatic approximation, 56
  nonadiabatic interactions, 3, 18
  numerical methods, 54
  recoupling region, 7
  resonance peaks, 99
  two-photon dissociation, 6
Photodissociation amplitude, 48
  numerical techniques, 54
Photofragments:
  angular distribution, 35
  fluorescence from, 38, 50
Photon polarization matrix, 45
Photosensitivity ionization, 170
Physical density operator, 238
Plane wave(s), 225
  expansion, 40
Plasmas, molecular, 216
Platinum hexafluoride, 212
Platinum oxyfluoride, 212
Polarization functions, 179
Polarization matrix, 45
Polarized fluorescence, angular distribution, 36
Polyatomic molecules, photodissociation, 106
Polyatomic radicals, electron affinity, 197
Polydispersity parameter, 362
Polymer chain:
  binary collision, 321
  branched, 410
  Brownian motion, 383
  as connected object, 323
  effect on turbulent flow, 410
  flow fields effect, 410
  intrachain interaction, 323
  overlapping, 353
  partition function, 306, 354
  repulsive core, 304
  static scattering function, 404
  total Hamiltonian, 418
  translational friction coefficient, 371
Polymerization, 363
Polymerization index, 303
Polymer number density, 357
  and osmotic pressure, 363
Polymers, intermolecular forces, 304
Polymer solutions:
  comparison of theoretical and experimental results, 390
  concentration, 353
  cumulative effect of interactions, 316
  dilute:
    crossover behavior, 413

Polymer solutions (*Continued*)
prediction of renormalization group theory, 390
transport properties, 413
dynamical properties, 304
four-body interactions, 319
hydrodynamic effect, 324
hydrodynamic interaction, 304
Kadanoff transformation, 319
large-scale phenomenology, 323
monomer density field fluctuations, 315
nondilute, 324
nonequilibrium problems, 370
phenomenological description, 322
semidilute:
comparison of experimental and theoretical values, 406
dynamics, 413
excluded volume parameter, 370
osmotic pressure, 330
solvent effect, 304
static properties, 304, 330–370
statistical physics, 301–437
time-scale properties, 322
transport phenomena, 370–389
transport properties, 304
Potassium, electron affinity, 189
Potassium iodide, photodissociation, 17
Potassium molecule, 15
Potential energy, molecular, 2
Potential flows, 411
Potential scattering, 267
invariants, 265
problems, 240
physical representation, 256
quantum mechanical formulation, 265
Precollisional correlations, 264
Projection operator, 426
Pure precession hypothesis, 35

Quantum dynamical calculations, 116
Quantum field theory, 229
Quantum number:
magnetic, 42
molecular rotational, 119
spin, 24, 89
Quantum reactive scattering, reduced dimensionality theories, 118
Quantum scattering theory, 225
Quantum sudden, 143
Quantum theory, 107, 225
and time, 228
Quasiclassical trajectory, 138, 143
rate constant, 144
Quasilinear partial differential equations, 329

Radiation damping, 229
Radiative association, 102
Radiative electron attachment, 170
Radicals, electronic structure, and electron affinity, 193
Raman lasers, 17
Random walk, 317
Gaussian, 368
lattice, 320
properties, 321
renormalized, 320
Rate constant, 130
for $D + H_2$ ($v = 0$) reaction, 147
transmission coefficient, 131
vibrationally excited, 158
vibrationally state-to-state, 145
Reaction coordinates, 126
Reaction path, 118
one-dimensional theory, 126
reaction coordinates, 126
Reactive scattering, 118
resonances, 140
two-mathematical dimensional calculations, 119
Real space renormalization, 304
Recoil approximation, 5, 54, 60
J-dependent, 63
J-independent, 69–84
Redox reaction, and electron affinity, 170
Reduced-dimensionality approximation, 120
Reduced dimensionality theories, 118–130
Regularization procedure, 284
Relaxation energy, 177
definition, 179
for dilute solutions, 385
electronic, 180
Renner-Teller coupling, 154
Renormalizability, 323
Renormalization constant, 325
Renormalization group equation, 324, 326, 328, 337, 378
mean square end-to-end distance, 328
for osmotic pressure, 363
Renormalization group theory, 303

application to static properties, 330
bare parameters, 324
dimensionless parameters, 324
outline, 322–330
prediction, 390
Renormalization group transformation, 319, 345
Renormalized constant, 328
Reparametrization, 310
Resonance:
dipole interaction, 103
Fano-type, 4
Feshbach, 4, 93, 95
shape, 4, 93, 95
Resonant transition, 39
Rhenium carbonyl, 191
Riccati-Bessel functions, 40
Ritz-Einstein controversy, 267
Rotational coordinates, electronic, 19
Rotational effects, on sodium photodissociation, 105
Rotor wave function, 129
Rubidium, electron affinity, 189
Rubidium iodide, photodissociation, 17
Rubidium molecule, 15
Russel-Saunders coupling, 2, 24
Ruthenium tetraoxide, ionization potential, 209
Rydberg radicals, 215

Scalar product, 387
Scaling argument, sketch, 414
Scaling property, 313
Scaling theory, 303
Scaling transformation, 319
Scandium tetrafluoride, 211
Scattering:
boundary conditions, 124
cross sections, 225
density-matrix formulation, 231
divergence, 232
formulation, 230
function, 359
static, 404, 414
static coherent, 389
invariants of motion, 264.
matrix, 123, 125
nonphysical solutions, 229
two-body, 227, 259
as wave functions interference, 228
Scattering operator, 270
Schrödinger equation, 55, 121, 227
adiabatic approximation, 122
adiabatic bending eigenvalue, 122
bending eigenfunctions, 123, 127
bending eigenvalues, 123, 127
centrifugal potential, 124
centrifugal sudden approximation, 121
scattering boundary conditions, 124
solution, 173
time dependence, 228
Screening effect, 353
and excluded volume parameter, 359
Selenium hexafluoride, 199
Self-avoiding theta chain crossover, 345
Self-avoiding walk, 315, 316, 351
end-to-end vector, 334
finite order, 351
and Gaussian random walk, 368
number of conformations, 340
and theta state, 345
Self-consistent field theory, 314
Self-consistent multiconfigurational method, 182
Semidilute solution dynamics, 370
Siegert boundary conditions, 56
Silicon fluoride, 199
Silicon hydride, electron affinity, 188
Single-photon dissociation, 6, 36
Singular invariants, 264
Slater's determinants, 181
Sodium fluoride, ionization potential, 213
Sodium hydride:
angular distribution of photofragments, 95
electron affinity, 188
fluorescence from photofragments, 95
photodissociation, 4
branching ratio, 94
cross section calculation, 92
potential energy curves, 93
single-photon dissociation, 96
two-photon dissociation, 97
Sodium molecule:
electron affinity, 189
photodissociation, 14
cross section calculation, 103
resonance dipole interaction, 103
potential energy curves, 14
resonance dipole interaction, 103
Sodium oxide, ionization potential, 214

Sodium sulfide, ionization potential, 214
Solid-state physics, 170
Solvent:
  Brownian motion, 384
  hydrodynamic description, 371
  velocity field, 371
  viscosity, 371, 404
Spatial dimensionality, 308
  and lattice random walk, 321
Spherical waves, 225
Spin angular momentum, 29
Spin orbitals, 186
Spin-orbit coupling, 4, 7, 16, 21, 23, 31
  bond length dependence, 106
Spin-orbit Hamiltonian, 35
Spin-orbit splitting, 29
Spin quantum numbers, 24, 89
Starunitary sector, 248
State vector, 272
Static coherent scattering function, 389
Static properties, 330–370
  concentration dependence, 353
  temperature dependence, 344
Static scattering function, 404, 414
Static structure factor, 366
Stationary distribution function, 411
Statistical physics, of polymer solutions, 301–437
Stokes formula, and translational friction coefficient, 415
Structure calculations, electronic, 187
Subdynamics projector, 245
Sulfur dioxide, electron affinity, 189
Sulfur hydride, electron affinity, 189
Superalkalies, 213
  cations, 216
  electron affinity, 216
Superhalogens, 197
  peculiar chemical properties, 212
Superoperator, 226
  auxiliary, 294
  diagonalization, 294
  nonfactorizable, 236
Superoperator technique, 181
Superprojectors, 235
Superspace, 225
  dynamics of, 228
Surface ionization technique, 170
Symmetry, 199
  adjoint, 239
  inversion, 22, 28
Synchrotron radiation, 12

Tantalum hexafluoride, valence ionization potential, 201
Technetium octafluoride, 211
Tellurium hexafluoride, 199
Tetraoxyanions, 209
Thalium chloride, photodissociation, 18
Thermal rate constant, 116
  for $H + H_2$ ($v=0$) reaction, 139
Thermodynamics, Second law, 224
  microscopic formulation, 261
Theta state:
  approximation, 346
  minimal model, 345
Theta temperature, 308
  conventional interpretation, 310
  statistical mechanics of, 317
  and two-body interaction, 317
Three-atom bending motion, 121
Three-dimensional rate constant, for $H + H_2$ reaction, 117
Three-dimensional reactions, 129
Time, and quantum theory, 228
Time-scale properties, of polymer solutions, 322
Time symmetry, 236
Transformation, orthogonal, 128
Transformation operator, 65
Transformation theory, 227
Transition matrix, 276
Transition metal hexafluoride:
  antibonding character, 206
  electron affinity, 200
  valence ionization potential, 201
  valence molecular orbitals, 207
Transition metals as superhalogens, 200
Transition operator, 275
Transition probabilities, 128
Transition state configuration, 124
Transition state theory, 116
  bending energy, 126, 131
  symmetric stretch, 131
Transmission coefficients, 117
  for $O + D_2$ ($v=0$) reaction, 157
Transport coefficient, 322, 370
Transport phenomena, 370–389
Transport properties, hydrodynamic parameter, 391

Tungsten hexafluoride, 198
  valence ionization potential, 201
Tunneling, 93, 116, 132
Turbulent flow, 410
Two-body diagrams, effective, 336
Two-body interchain interaction, 316
2-Dimensional flow, 372
Two-mathematical dimensional collinear
    reaction, Schrödinger equation, 122
Two-parameter theory, 327
Two-photon dissociation, 6, 36
  angular distribution of photofragments, 85
  branching ratios, 81, 84
  fluorescence anisotropy parameters, 82

Ultraviolet synchrotron sources, 10
Uncertainty principle, 162
Uniform measure, 309
Unitary transformation, 254
Universality class, 322
Universal ratio, 343, 391
  asymptotic values, 394
  and intrinsic viscosity, 392
  plot of, 398
Unperturbed eigenstates, 270
Unperturbed end-to-end distance, 317

Vacuum elements, 240
Vacuum propagator, 249
Vacuum ultraviolet photochemistry, 9
Valence correlation energy, 184
Valence ionization, 182
  of transition metal fluorides, 201
Vanadium hexafluoride, 211
van der Waals force, 304
Virial coefficient, 364
Volterra integral equation, 55

Wave function:
  configuration interactions, 181
  electronic, 23
  molecular electronic, 24
  multichannel, 64
  normalization, 242
  vibrational, 22
Wave packets, 257
  localized, 264
Wave vector, 269
Wiener process, 321
  Markovian property, 331
Wigner-Eckart theorem, 48
Wigner rotation matrices, 25
Woodward-Hoffman rules, 196

X_α methods, 187-192
  discrete variational, 190
  scattered wave, 189
Xenon pentafluoride, 212

Zero-component field theory, 303, 352
Zero-point energy, 162